

A NEW GENUS AND NEW SPECIES OF CEPHIDAE (HYMENOPTERA)
FROM SULAWESI UTARA, INDONESIA

DAVID R. SMITH AND AKIHIKO SHINOHARA

(DRS) Systematic Entomology Laboratory, PSI, Agricultural Research Service, U.S. Department of Agriculture, c/o National Museum of Natural History, Smithsonian Institution, Washington, DC 20560-0168, U.S.A. (e-mail: dsmith@sel.barc.usda.gov); (AS) Department of Zoology, National Science Museum (Natural History), 3-23-1 Hyakunincho, Shinjuku-ku, Tokyo, 169-0073, Japan (e-mail: shinohar@kahaku.go.jp)

Abstract.—*Sulawesius grandoculus*, n. gen., n. sp., is described from Sulawesi Utara, Indonesia. The genus does not fit into the current classification of the Cephidae, but it is provisionally placed in the Athetocephinae, a subfamily previously known only from Madagascar.

Key Words: *Sulawesius*, Indonesia, Athetocephinae

Most cephids are found in the temperate regions of the Northern Hemisphere. Only a few occur south into subtropical or tropical regions, and very few occur south of the equator. In the New World, the southernmost record is a species of *Hartigia* from the State of Chiapas, Mexico (Smith 1988). In the Old World, however, the tropical fauna is more diverse. The subfamily Athetocephinae, with one genus and two species, occurs in Madagascar (Benson 1935, 1946), *Janus* and *Urosyrista* occur in the tropics in Myanmar and Viet Nam (Naito et al. 1998), and one species of *Janus* is known from western Kalimantan, Indonesia (Smith 1994, 1997). Goulet (1992) reported seeing a species from Australia. It is apparent that more cephids are to be discovered in the Old World tropics, but, unfortunately, only single or a few specimens of several species form the basis of our knowledge. Such is the case with the unusual species we report on here. It is a single specimen from Sulawesi Utara in Indonesia, so unusual that it does not conform to, and, in fact, confounds the existing classification,

even at the subfamily level, and unusual in that it is one of the few known cephids that occur in the Southern Hemisphere. It warrants attention and adds another segment of information to our understanding of the family.

PLACEMENT IN CEPHIDAE

The only world classification available is that by Benson (1946) who recognized two subfamilies, Athetocephinae (misspelled Achetocephinae in some literature) and Cephinae. Athetocephinae occur only in Madagascar and Cephinae are Holarctic and Oriental. The subfamily Cephinae includes three tribes, Pachycephini (Mediterranean and Near East), Hartigiini (Holarctic and Oriental), and Cephini (Holarctic).

The genus we describe does not conform to the definition of either of Benson's (1946) subfamilies but shares certain characteristics with each. It shares the following with Athetocephinae: Labial palpus 3-segmented and without a sensory pit, much longer and stouter than the 4-segmented maxillary palpus; lack of a genal carina (al-

though also absent in a few *Pachycephus* and *Janus*); antennae constricted only at the base and thickest in the middle (Fig. 2); left mandible bidentate (though with a different shaped inner tooth, Fig. 3); inner tooth of the tarsal claw longer and stouter than the outer tooth (but a small, rounded basal lobe present); radial crossvein of the forewing meeting the stigma at about its center; and front ocellus separated from each of the hind ocelli by a distance not more than the diameter of a single ocellus. It does not agree with Athetocephinae (characters in parentheses) by the following, most of which would place the new genus in Cephinae, tribe Hartigiini, in Benson's key (1946): Forewing with intercostal area less transparent than the rest of the wing membrane (same transparency); hindwing with 5–7 hamuli (11–15 hamuli); female sawsheath with the main axis almost straight, as in Fig. 4 (sheath strongly directed upward); head in dorsal view strongly narrowing behind eyes, as in Fig. 2 (large and expanded behind eyes); distance between the antennal sockets about equal to the distance between an antennal socket and the nearest anterior tentorial pit, as in Fig. 3 (distance between antennal sockets twice distance between antennal socket and anterior tentorial pit); hindtibia with one preapical spine (no preapical spine); and tarsal claw with indistinct, rounded basal lobe (basal lobe absent).

The new genus has the following unique characters that separate it from Athetocephinae and Cephinae and all the genera therein: Eyes extremely large, covering most of side of head, in lateral view eye close to and parallel with hind margin of head, in dorsal view, head strongly narrowing behind eyes (Figs. 1, 2); left mandible bidentate with inner tooth broad, rounded to truncate (Fig. 3); and tarsal claw with a small, rounded basal lobe.

The labial and maxillary palpi, antennae, position of the radial vein of the forewing, lack of a genal carina, and closeness of the ocelli are similar to *Athetocephus*; the man-

dibles are similar to *Pachycephus*; the tarsal claws are similar to *Janus*, *Hartigia*, and *Athetocephus*; and the less transparent intercostal area of the forewing, antennal-antennal to antennal tentorial distance, and sawsheath are similar to the Cephinae. The current subfamilies could be redefined, or a new subfamily or tribe could be justified; however, we prefer to provisionally assign this genus to Athetocephinae because we believe more significant characters, as cited above, are shared with that subfamily than with the Cephinae.

Within the Athetocephinae, the new genus is separated from *Athetocephus* by the large eyes; head strongly narrowing behind the eyes; large, blunt inner tooth of the left mandible; presence of a rounded basal lobe on the tarsal claw; the intercostal area of the forewing less transparent than the rest of the wing membrane; presence of only 5–7 hamuli on the hind wing; and presence of a preapical spur on the hind tibia (though this can be variable in Cephidae). Benson (1935) described *Athetocephus* and again (1946) separated it from other Cephidae. Paulian (1961) gave an illustration of the dorsal habitus of one species, and Chevin (1984) gave some additional notes and described the female of one of the species.

Sulawesius Smith and Shinohara, new genus

Type species.—*Sulawesius grandoculus* Smith and Shinohara, n. sp.

Description.—Antenna constricted to middle of 4th segment, then broadened and slightly tapering at apex, thus somewhat thickened in the middle (Fig. 2); scape 2× longer than broad; pedicel as long as broad; 3rd segment slightly longer than 4th segment; apical 5–6 segments about as long as broad. Labial palpus 3-segmented, without sensory pit. Maxillary palpus apparently 4-segmented (difficult to see in specimen), shorter and more slender than labial palpus. Left mandible bidentate with outer tooth acute and inner tooth broad and rounded to truncate; right mandible with two acute



Fig. 1. *Sulawesius grandoculus*, habitus, lateral view.

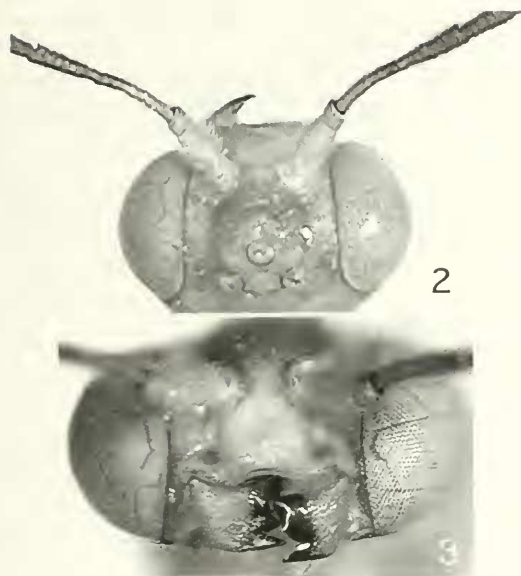
teeth, inner tooth shorter than outer, and with rounded basal region (Fig. 3). Genal carina absent. Eyes extremely large, covering most of side of head, slightly diverging below with lower interocular distance equal to or slightly greater than eye length and upper interocular distance slightly less than eye length; in lateral view, eye close to and parallel with hind margin of head (Figs. 1–3); in dorsal view, head strongly narrowing behind eyes (Fig. 2). Malar space slightly less than diameter of front ocellus (Fig. 3). Front ocellus separated from each hind ocellus by a distance not more than diameter of a single ocellus. Forewing with intercostal area less transparent than rest of wing membrane; radial crossvein (2r) meets stigma at about its cen-

ter. Hindwing with 5–7 hamuli on front margin; with closed cells M and RS; rest of venation typical of Cephidae. Hindtibia with one preapical spine. Tarsal claws with subapical tooth longer and broader than apical tooth, and with indistinct, rounded basal lobe.

Etymology.—The genus name is based on the Indonesian province in which it was collected. Gender: masculine.

***Sulawesius grandoculus* Smith and Shinohara, new species**
(Figs. 1–5)

Female.—Length, 8.1 mm; forewing length, 9.0 mm. Yellow; apex of mandible reddish brown; antenna with 1st flagellar segment and basal $\frac{1}{4}$ of 2nd flagellar seg-

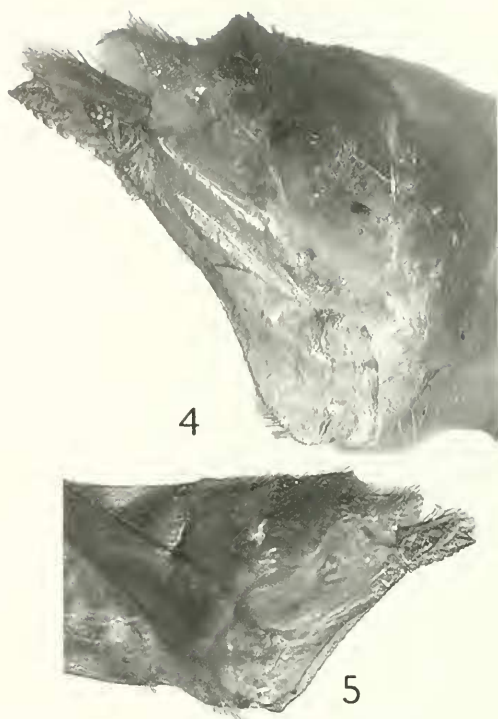


Figs. 2-3. *Sulawesius grandoculus*. 2. Head, dorsal view. 3. Head, front view.

ment reddish brown; apical $\frac{3}{4}$ of 2nd flagellar segment to apex black; mesopleuron whitish. Wings hyaline, with intercostal area of forewing darkened; veins and stigma black with basal half of costa and subcosta yellow. Head and body shining, impunctate; only mandible with somewhat elongated pits and center of clypeus roughened.

Antenna 22-segmented, length $2.4\times$ head width (Figs. 1, 2). Clypeus with slight central circular emargination (Fig. 3). Distance between antennal sockets only slightly longer than distance from antennal socket to anterior tentorial pit (as 1.2:1.0) (Fig. 3). Distances between eye and lateral ocellus, between hind ocelli, and from hind ocelli to posterior margin of head as 1.1:1.0:1.1; postocellar area about $2\times$ broader than long (Fig. 2). Hind basitarsus slightly shorter than remaining tarsal segments combined (as 1.0:1.1). Cercus length subequal to length of sheath (Fig. 4). Sheath and basal plate in a straight line. Lancet well sclerotized, with truncate serrulae (Fig. 4) (not dissected, partly exerted in holotype).

Male.—Unknown.



Figs. 4-5. *Sulawesius grandoculus*, apex of abdomen and sheath, two aspects.

Holotype.—♀, labeled as follows: "9604021 coll. BMNH," "Indonesia: Sulawesi Utara, Dumoga-Bone N.P., May 1985," "Gunung Mogogonipa, 1000 m, Malaise, J.S. Noyes, J.H. Martin." Deposited in The Natural History Museum, London.

Etymology.—The specific epithet refers to the unusually large eyes of this species.

ACKNOWLEDGMENTS

We thank Christine Taylor, The Natural History Museum, London, U.K., for allowing examination of this specimen. Cathy Anderson, Systematic Entomology Laboratory (SEL), USDA, Washington, DC, took the photographs and arranged the plates. Our thanks to Nathan Schiff, U.S. Forest Service, Stoneville, MS, and A. S. Konstantinov and T. J. Henry, SEL, Washington, DC, for review of the manuscript.

LITERATURE CITED

- Benson, R. B. 1935. On the genera of the Cephidae, and the erection of a new family Syntexidae (Hymenoptera, Symphyta). *Annals and Magazine of Natural History* (10)16: 535–553.
- . 1946. Classification of the Cephidae (Hymenoptera Symphyta). *Transactions of the Royal Entomological Society of London* 96: 89–108.
- Chevin, H. 1984. Note sur les Hyménoptères Tenthredoïdes (X1). *Bulletin Mensuel de la Société Linéenne de Lyon* 53: 303–309.
- Goulet, H. 1992. The genera and subgenera of the sawflies of Canada and Alaska, Hymenoptera: Symphyta. Part. 20. *In* *The Insect and Arachnids of Canada*, Research Branch, Agriculture Canada, Publication 1876, 235 pp.
- Naito, T., D. R. Smith, and E-S. Huang. 1998. Records of Cephidae (Hymenoptera) from China and southeastern Asia, with two new species of *Jamus* Stephens. *Japanese Journal of Systematic Entomology* 4: 237–242.
- Paulian, R. 1961. XIII. La Zoogéographie de Madagascar et des îles voisines. *In* *Faune de Madagascar*, l'Institut de Recherche Scientifique, Tananarive—Tsimbazaza, 484 pp.
- Smith, D. R. 1988. A synopsis of the sawflies (Hymenoptera: Symphyta) of America south of the United States: Introduction, Xyelidae, Pamphiliidae, Cimbicidae, Diprionidae, Xiphidriidae, Siricidae, Orussidae, Cephidae. *Systematic Entomology* 13: 205–261.
- . 1994. A new species of *Jamus* Stephens (Hymenoptera: Cephidae) from Indonesia. *Treubia* 31: 59–63.
- . 1997. A new species of *Jamus* (Hymenoptera: Cephidae) from Indonesia. *Entomological News* 108: 24–28. [Description of same species inadvertently published in 1994; 1997 publication a more complete description with figures.]